sities 1000 to 20,000 being very nearly the same. The curve for this region would thus be a shallow trough. The average value of the sensibility between 100,000 and 20 is about 1/44. They also conclude (1) that the variations between the two observers are so slight as to show that the differences in their color distinctions do not affect the results; (2) that from the highest intensities down to 100 or 20, the wave-length does not affect the sensibility, the latter being a function of the illumination only; (3) that the three wave-lengths 670$\mu\mu$, 605$\mu\mu$ and 575$\mu\mu$ form one group, and 505$\mu\mu$, 470$\mu\mu$ and 430$\mu\mu$ form another group, the sensibility decreasing more rapidly with the latter than with the former. Again, the intensity of the light distinguishable from darkness was, from the longest to the shortest wave-lengths, .11, .011, .0055, .00035, .00013, .00014 intensities respectively. A very important conclusion that the authors draw is that with a brightness *subjectively* the same, the sensibility is independent of the wave-length; in other words, the same physical intensity in various colors does not appear the same psychically; and it is the latter that is the standard, not the former. J. J.

On some peculiarities of the phantom images formed by binocular combination of regular figures. JOSEPH LE CONTE. Am. Jour. of Science, 3d series, XXXIV (1887).

The observations presented by Prof. Le Conte are four. (1) On looking downward at about 45° on a regular repeated pattern like that of an oil-cloth, and combining the patterns by crossing the eyes, the observer sees the phantom plane raised at the adjacent end, the elevation increasing as figures farther and farther apart are combined. The reason is that the rows of figures as they run forward from the observer slant inward (except the middle one) by mathematical perspective. As lines of figures with greater and greater slant are made by the crossing of the eyes to serve as the middle one of the field, they cross at greater and greater angles. Since this is what would actually be present if the observer were looking down a sloping plane, the image is involuntarily interpreted after that analogy. The individual figures appear elongated because referred to such a plane. The reverse effect is here as elsewhere to be obtained by combining the images with parallel lines of sight. (2) If a vertical plane is taken, on looking upward or downward the image inclines away in the direction of sight. (3) If the eyes are kept at the neutral point (about 7° above the horizontal for Prof. Le Conte himself), no such sloping is seen (if anything, the reverse curvature), but the plane falls away at the sides. If, however, the eyes are moved upward and downward, both curvatures appear. The sides are seen sloping because the points of the real plane to the right and left of the fixation point are represented on retinal points that belong to homonymous images, and are therefore interpreted as beyond the fixation point. (4) If the vertical surface is bent on its vertical diameter, like a half-open book seen from behind or before, the convex (or concave) effect is increased, as with the Le Conte Stephens stereoscope (Am. Jour. Sc. 3d series, XXIII, 297 ff.), but this increase is due to geometrical, not to retinal causes. The curvature of the plane in the third observation is a corollary of the circular form of the horopter in such a position of the eyes.